WHAT IS CLAIMED IS:

1. A semiconductor laser device comprising:

a substrate;

a first conductivity type cladding layer;

an emission layer;

Sub A1

a second conductivity type cladding layer containing Al as a group III element and formed with a ridge portion; and

a current blocking layer, formed on said second conductivity type cladding layer around said ridge portion, containing Al as a group III element in this order, wherein

an angle θ of inclination on the side surfaces of said ridge portion with respect to the upper surface of said substrate is at least $70°$ and not more than $117°$,

the distance t between said emission layer and said current blocking layer satisfies the relation of $t \leqq 0.275/(1 - (X2 - X1))$ [μm] assuming that X1 represents the composition ratio of Al in group III elements forming said second conductivity type cladding layer, X2 represents the composition ratio of Al in group III elements forming said current blocking layer and t represents said distance, and

a lower width W of said ridge portion is at least 2 μm and not more than 5 μm.

2. The semiconductor laser device according to claim 1,

Sub A1 (cont'd)

wherein

said first conductivity type cladding layer contains Al and Ga as group III elements, and X1 represents the composition ratio of Al in the sum of the contents of Al and Ga, and

said current blocking layer contains Al and Ga as group III elements, and X2 represents the composition ratio of Al in the sum of the contents of Al and Ga.

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3. The semiconductor laser device according to claim 2, wherein

said second conductivity type cladding layer is made of $Al_{x1}Ga_{1-x1}As$, and

said current blocking layer is made of $Al_{x2}Ga_{1-x2}As$.

Sub A2

4. The semiconductor laser device according to claim 1, wherein

said distance t satisfies the relation of t ≦ 0.252/(1 − (X2 − X1)) [μm].

5. The semiconductor laser device according to claim 1, wherein

said distance t is at least 0.15 μm.

6. The semiconductor laser device according to claim 1, wherein

~~said distance t is at least 0.2 μm.~~

Sub A2 (concl.)

~~7. The semiconductor laser device according to claim 1, wherein~~

~~the upper surface of said substrate is the {100} plane or inclined by several degrees from the {100} plane, and said ridge portion extends in the <011> direction.~~

~~8. The semiconductor laser device according to claim 1, wherein~~

~~the upper surface of said substrate is the $\{\bar{1}00\}$ plane or inclined by several degrees from the $\{\bar{1}00\}$ plane, and said ridge portion extends in the $\langle 0\bar{1}1 \rangle$ direction.~~

9. A method of manufacturing a semiconductor laser device comprising steps of:

forming a first conductivity type cladding layer, an emission layer, a second conductivity type first cladding layer having a prescribed thickness, an etching stop layer and a second conductivity type second cladding layer having a composition ratio X1 of Al in group III elements on a substrate in this order;

partially removing said second cladding layer thereby forming a ridge portion having an angle θ of inclination of at least 70° and not more than 117° on the side surfaces with

respect to the upper surface of said substrate and a lower width W of at least 2 μm and not more than 5 μm; and

forming a current blocking layer on both sides of said ridge portion so that the distance t between the upper surface of said second conductivity type second cladding layer exposed around said ridge portion and said emission layer satisfies the relation of $t \leqq 0.275/(1 - (X2 - X1))$ [μm] assuming that X2 represents the composition ratio of Al in group III elements and t represents said distance.

10. The method of manufacturing a semiconductor laser device according to claim 9, wherein

said first conductivity type cladding layer contains Al and Ga as group III elements, and X1 represents the composition ratio of Al in the sum of the contents of Al and Ga, and

said current blocking layer contains Al and Ga as group III elements, and X2 represents the composition ratio of Al in the sum of the contents of Al and Ga.

11. The method of manufacturing a semiconductor laser device according to claim 10, wherein

said second conductivity type first and second cladding layers are made of $Al_{X1}Ga_{1-X1}As$, and

said current blocking layer is made of $Al_{X2}Ga_{1-X2}As$.

12. The method of manufacturing a semiconductor laser device according to claim 9, wherein

said distance t satisfies the relation of $t \leqq 0.252/(1 - (X2 - X1))$ [μm].

13. The method of manufacturing a semiconductor laser device according to claim 9, wherein

said distance t is at least 0.15 μm.

14. The method of manufacturing a semiconductor laser device according to claim 9, wherein

said distance t is at least 0.2 μm.

15. The method of manufacturing a semiconductor laser device according to claim 9, wherein

the upper surface of said substrate is the {100} plane or inclined by several degrees from the {100} plane, and

said step of forming said ridge portion includes steps of forming a mask extending in the <011> direction and performing etching with said mask.

16. The method of manufacturing a semiconductor laser device according to claim 9, wherein

the upper surface of said substrate is the {$\bar{1}$00} plane or inclined by several degrees from the {$\bar{1}$00} plane, and

said step of forming said ridge portion includes steps of forming a mask extending in the $\langle 0\bar{1}1\rangle$ direction and performing etching with said mask.